

NASA's Strategic Capabilities Assets Program

NASA JET PROPULSION LABORATORY

THE 25-FOOT SPACE SIMULATOR



The 25-Foot Space Simulator at the Jet Propulsion Laboratory (JPL) is designed for environmental testing of robotic spacecraft in simulated interplanetary conditions of extreme cold, high vacuum, and intense solar radiation. Intensities up to 2.0 solar constants (with 15-foot beam) can be achieved. This chamber has supported tests for various NASA projects, including Cassini, Voyager, the Mars Pathfinder, the Mars Exploration Rover Mission, and the Mars Science Laboratory.

TECHNICAL SPECIFICATIONS

Chamber rating	Class 7 (ambient pressure)
Contamination monitoring	QCM, RGA, and NVR
Solar type	Xenon spectrum
Solar flux (15-foot beam)	2,800 W/m ²
Solar flux (19-foot beam)	1,420 W/m ²
Temperature range (low)	-185 °C
Temperature range (high)	100 °C
High vacuum pumping system	Cryo & turbo
Nominal vacuum pressure	8 x 10 ⁻⁶ Torr
Data recording system	650 channels/35 power supplies
Clean room	Class 8
Crane capacity	5 tons

PHYSICAL CHARACTERISTICS

Chamber dimensions (useable)	25 feet x 70 feet
Chamber dimensions (solar)	Dependent on lens diameter
Chamber orientation	Vertical
Test article access clearance	15 feet x 25 feet
Clean room	29 feet x 33 feet

CONTACT INFORMATION

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